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## **Lipoproteins, apolipoproteins, and low-density lipoprotein size among diabetics in the Framingham offspring study.**

**Siegel RD, Cupples A, Schaefer EJ, Wilson PW.**

Division of Endocrinology, Diabetes, Metabolism, and Molecular Medicine, New England Medical Center, Boston, MA 02111, USA.

Diabetes mellitus has been shown to be associated with lipid abnormalities. Prior studies have indicated that women with diabetes have a risk of coronary heart disease similar to that of men. We compared lipid parameters in diabetic and nondiabetic participants in cycle 3 of the Framingham Offspring Study. Values for plasma total cholesterol (TC), triglyceride, lipoprotein, cholesterol, apolipoprotein (apo) A1, B, apo and lipoprotein(a) [Lp(a)] and low-density lipoprotein (LDL) particle size were analyzed in 174 diabetic and 3,757 nondiabetic subjects. Data from a total of 2,025 men and 2,042 women participating in the third examination (1983 to 1987) of the Framingham Offspring Study were subjected to statistical analysis. Male and female diabetics showed lower high-density lipoprotein (HDL) cholesterol, higher triglycerides, higher very-low-density lipoprotein (VLDL) cholesterol, lower apo A1, and higher LDL particle scores, indicating smaller size, than nondiabetics. Female diabetics also showed significantly higher TC and apo B values than nondiabetics. The results remained statistically significant after controlling for obesity and menopausal status. The presence of small dense LDL particles (pattern B) was highly associated with diabetes and hypertriglyceridemia in both sexes, and the relative odds for pattern B remained significant in women but not in men after adjustment for age and hypertriglyceridemia. No differences in apo E isoform distribution were found for diabetics and nondiabetics. Diabetes was not associated with elevated LDL cholesterol levels. In conclusion, diabetics have lower HDL cholesterol and higher triglyceride levels and are more likely to have small dense LDL particles. Diabetes is not a secondary cause of elevated LDL cholesterol. Lipid screening of diabetics should include full quantification of lipids for proper assessment of potential atherosclerotic risk.

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